

A second species of the genus *Neorcarnegia* DRAUDT, 1930 (Lepidoptera, Saturniidae, Ceratocampinae)

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Abstract: A second species of the neotropical genus *Neorcarnegia* Draudt, 1930, is described from Bolivia and north-western Brazil (i.e., from the Central Brazilian plateau): *N. bispinosa* sp. n. The male holotype from Bolivia will be deposited in Zoologisches Museum der Humboldt-Universität zu Berlin. The species differs from its counterpart *N. basirei* (SCHAUS, 1892) known from southern and south-eastern Brazil, northeastern Argentina, and Paraguay by its slightly more greyish ground colour, less falcate forewings in male and female and less elongated tips of the hindwing inner angle in males, larger size of the transparent parts of fore- and hindwings, and mainly in details of male genitalia (two sclerites on the vesica instead of one in *N. basirei*). Notes on biogeography are given.

Eine zweite Art der Gattung *Neorcarnegia* DRAUDT, 1930 (Lepidoptera, Saturniidae, Ceratocampinae)

Zusammenfassung: Eine zweite Art der neotropischen Gattung *Neorcarnegia* DRAUDT, 1930, wird aus Bolivien und dem nordwestlichen Brasilien (das heißt, vom zentralbrasilianischen Plateau) beschrieben: *N. bispinosa* sp. n. Der männliche Holotypus wird in das Zoologische Museum der Humboldt-Universität zu Berlin gelangen. Die hier beschriebene Art unterscheidet sich von ihrer Schwesterart *N. basirei* (SCHAUS, 1892) aus dem südlichen und südöstlichen Brasilien, dem nordöstlichen Argentinien und Paraguay durch die etwas gräulichere Grundfarbe, die weniger falcaten Vorderflügel sowohl beim Männchen als auch beim Weibchen, die kaum vorhanden schwanzartigen Fortsätze am Übergang vom Hinterflügelinnen- zum Außenrand der Männchen, größere transparente Anteile der Vorder- und Hinterflügel sowie insbesondere durch Details in den männlichen Genitalstrukturen (zwei Sklerite auf der Vesica anstelle von einem wie bei *N. basirei*). Einige Bemerkungen zur Biogeographie werden gegeben.

Una segunda especie del género *Neorcarnegia* DRAUDT, 1930 (Lepidoptera, Saturniidae, Ceratocampinae)

Resumen: Se describe una segunda especie del género neotropical *Neorcarnegia* DRAUDT, 1930, de Bolivia y de la parte noroeste de Brasil: *N. bispinosa* sp. n. El holotipo macho, proveniente de Bolivia, será incorporado a las colecciones del Zoologisches Museum der Humboldt-Universität en Berlín. La especie se distingue de su pareja *N. basirei* (SCHAUS, 1892), hallada en la parte sureste de Brasil, la parte noroeste de Argentina y Paraguay, por su tono de base más grisáceo, las alas delanteras menos curvadas en los machos y las hembras, puntas menos alargadas del ángulo interior del ala trasera en los machos, mayores dimensiones de las partes transparentes de las alas delanteras y traseras así como detalles en la estructura genital de los machos. Se incluyen observaciones sobre la biogeografía.

Uma segunda espécie do gênero neotropical *Neorcarnegia* DRAUDT, 1930 (Lepidoptera, Saturniidae, Ceratocampinae)

Resumo: Uma segunda espécie do gênero neotropical *Neorcarnegia* DRAUDT, 1930 é descrita da Bolívia e do noro-

este do Brasil; *N. bispinosa* sp. n. O holótipo macho será depositado no Zoologisches Museum der Humboldt-Universität em Berlim. A nova espécie difere de sua semelhante *N. basirei* (SCHAUS, 1892), conhecida do sudeste do Brasil, do nordeste da Argentina e do Paraguai, pela coloração geral levemente mais acizentada, asas anteriores menos falcadas no macho e na fêmea, pela projeção posterior menos pronunciada do ângulo anal da asa posterior no macho, pela maior área transparente nas asas anteriores e posteriores, e por, principalmente, detalhes na genitália masculina (dois escleritos na vesica ao invés de um em *N. basirei*). São feitas considerações sobre biogeografia.

Introduction

The genus *Neorcarnegia* DRAUDT, 1930 is unique within the subfamily Ceratocampinae by its large hyaline speckling in the centre of all four wings (DRAUDT 1930: 813), widely separated eyes (MICHENER 1952: 406), ♂ genitalia structures (MICHENER 1952: 406; LEMAIRE 1988: 459 ff.), and the incomplete “tent-like” cocoon which is fixed by the larva to a hard substrate (DRECHSEL & LAMPE 1996: 146). Although not mentioned in his generic description, DRAUDT chose the name as a reminiscent to the African genus *Carnegia* HOLLAND, 1896 which has some similarities in wing form and pattern (BOUVIER 1931: 108). The genus was misspelled by several authors as ‡*Neocarnegia* [sic], e.g. by TRAVASSOS (1941: 586), MICHENER (1952: 370, 406 ff.), or LEMAIRE (1976: 51).

So far the genus *Neorcarnegia* was thought to contain just a single species, *N. basirei* (SCHAUS 1892). In his descriptive text SCHAUS (1892) already mentioned that “when the male is known, this species will require a new genus”. The description was based on a ♀ singleton from Rio de Janeiro, Brazil, deposited in the United States National Museum in Washington, which was later figured and carefully examined by ORTICICA FILHO (1959).

When I received material from Bolivia, small, but evident differences to topotypical specimens from southeastern Brazil became visible at once which later were confirmed by stable characters in ♂ genitalia. Obviously those authors who so far wrote about ♂ genitalia of *N. basirei* did not dissect topotypical material, as both MICHENER (1952: 407) and LEMAIRE (1988: 460, fig. 378) mention two cornuti on the ♂ vesica which, however, is the typical structure of the second, northwestern species (Fig. 5); *N. basirei* from SE Brazil (Santa Catarina etc.) and Paraguay always has only a single sclerite on its vesica as figured in Fig. 6 (dissection nos. 1423/06, 1470/06 NAUMANN [SE Brazil: Sta. Catarina]; 0532 BROSCHE [SE Brazil: Sta. Catarina]; 1985/06, 1986/06 [SE Brazil: Sta. Catarina], 1987/06 [Paraguay] NÄSSIG, in SMFL). Those specimens

mentioned by LEMAIRE (1988: 461) to originate from the southern and southeastern Brazilian states of Rio de Janeiro, Valencia, Sao Paulo, Bahia and Rio Grande do Sul should belong to typical *N. basirei*, judging from the known range and zoogeography, while specimens from Mato Grosso should be the species described here; specimens from those areas were not in the author's hands and could not be examined. A single ♀ from Argentina, Misiones, Pozo Azul, in the author's collection shows typical features of *N. basirei* as well and is a first record for this country.

Again the problematic situation with genitalia figures in LEMAIRE's whole work must be pointed out: Generally no dissection numbers or according specimens or at least locality data of dissected specimens are mentioned, and therefore in all questionable cases the identities of his genitalia figures remain unclear.

Already D'ABRERA (1995: 96) mentioned the differences in wing form of the population from Goiás in comparison to SE Brazilian specimens, and illustrated a specimen from there as "*N. basirei*? forma".

Due to the evidently constant characters especially in ♂ genitalia morphology by which it can be separated from topotypical *N. basirei*, I herewith describe a second species within the genus *Neorcarnegia* from Bolivia and northwestern Brazil (Goiás, Distrito Federal; i.e., from parts of the Central Brazilian Plateau):

Neorcarnegia bispinosa sp. n.

Holotype ♂: Bolivia, Santa Cruz prov., Tatarenda, 750 m, 6. xi. 1999, 23.00 h, leg. Pierre SCHMIT, exchanged 11. ix. 1999 in Berlin, collection Stefan NAUMANN (CSNB). A red holotype label will be fixed accordingly. The holotype will be deposited in the collection of Zoologisches Museum der Humboldt-Universität zu Berlin (ZMHU) (Figs. 1a, 1b).

Paratypes (in total 11 ♂♂, 4 ♀♀): **Bolivia**: 1 ♀ (allotype; Figs. 3a, 3b), Tarija prov., La Mamora, 900 m, 31. x. 1999, 22.00 h, leg. Pierre SCHMIT, exchanged 11. ix. 1999. A red allotype label will be fixed accordingly. 1 ♂, same data as holotype. 1 ♂, same locality as holotype, 15. x. 2001, 23.00 h, leg. Pierre SCHMIT, genitalia prep. 1424/06 NAUMANN. 1 ♂, Tarija prov., La Mamora, 900 m, 31. x. 1999, 19.00 h, leg. Pierre SCHMIT, exchanged 11. ix. 1999. 1 ♂, Santa Cruz prov., road Ipita-Abapo, 2800 ft., 19°3.320' S, 63°28.218' W, 31. x. 2000, leg. D. HERBIN & M. LAGUERRE, genitalia no. 1472/06 NAUMANN. All in CSNB. 1 ♂, Chuquisaca, Mte. Agudo, 1400 m, 18. x. 2001, leg. P. SCHMIT, in coll. F. MEISTER. — **Brazil**: 2 ♂♂, [Brazil], Go. [= Goiás], Ponte Funda, Município Vianópolis, Planalto Goiano, 7. & 13. x. 1966, collection L. SCHWARTZ, Muséum Lyon 2002, MHNL 47012194 & 47012195, genitalia no. 1547/06 NAUMANN; 2 ♀♀, D.F. [= Distrito Federal], Planaltina, xi. 1994, collection L. SCHWARTZ, Muséum Lyon 2002, MHNL 47012205 & 47012206; all in Muséum d'Histoire naturelle de Lyon [MHNL]. 1 ♀, 24. ii. 1994, Federal District, Planaltina, V. O. BECKER leg.; 1 ♂, 14. iv. 1983, same data; 1 ♂, 19. x. 1976, same data; 1 ♂, 9. x. 1969, Goiás, Cilu, between Luziânia and Vianópolis, TANGERINI leg.; 1 ♂, 21. x. 1976, Goiás, Formosa, V. O. BECKER leg.; all in coll. Carlos G. C. MIELKE (CGCM), Curitiba, Parana, Brazil. — Blue paratype labels will be fixed accordingly.

Derivatio nominis: The species is named after the typical two spinose sclerites on its vesica in the phallus.

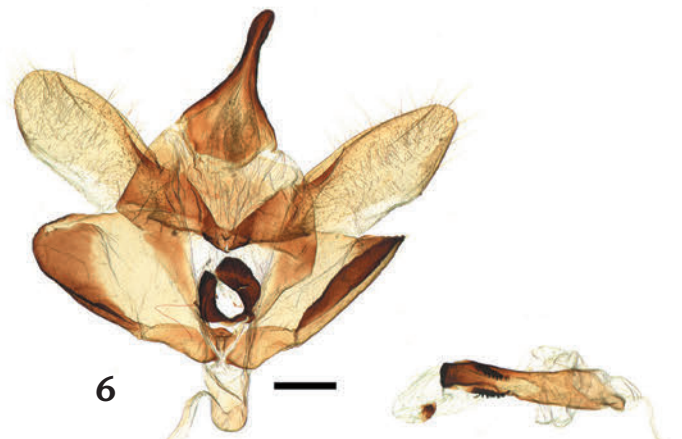
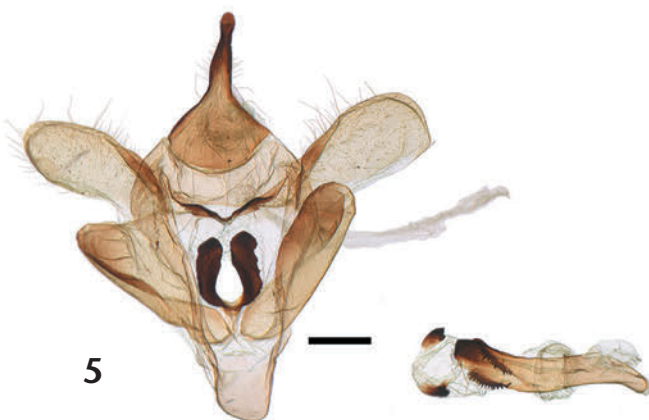
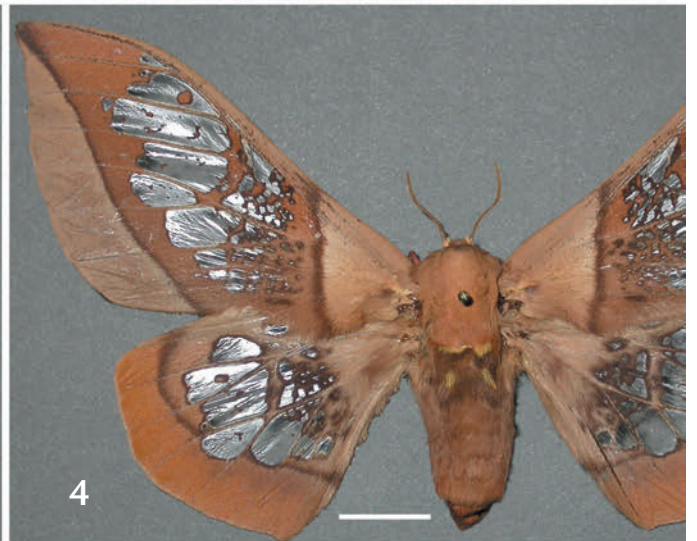
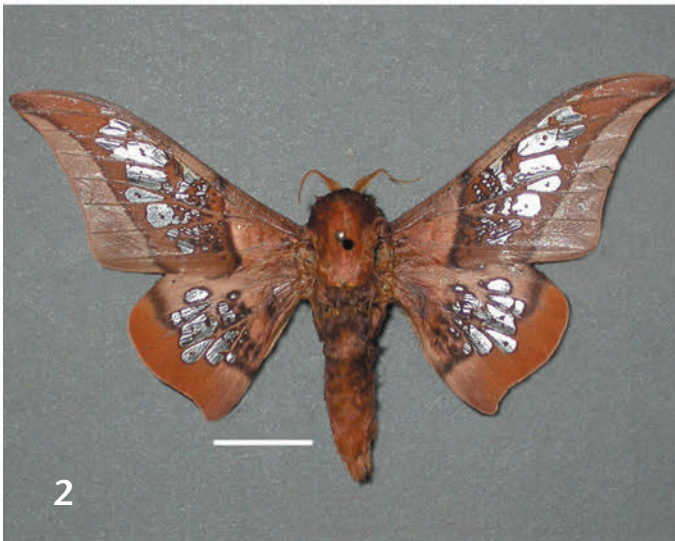
Description and diagnosis

♂ (Figs. 1a, 1b): Ground colour greyish chocolate brown. Antennae ochreous, in first 13 segments quadripectinate, then ending with 19 filiform segments, in total around 9.0 mm long. Antennal base and frons on lateral sides whitish, central part dark grey. Thorax on dorsal side of greyish colour, centrally with pink shadow, ventral side darker, tibia of first leg and all tarsi light pinkish grey, pretarsus dark brown. Abdomen of homogenous greyish brown colour, first two segments on dorsal side with dark brown hair and a row of yellow scales. Forewing from basis to apex 28.5–34.0 mm long (holotype 28.5 mm; average 30.6 mm, n = 6; for comparison *N. basirei*: average 32.5 mm, n = 4), with almost the same typical pattern with lots of transparent spots in the median area, but the apex more nearly rectangular and not bent outward as in *N. basirei* (Fig. 2), the black postmedian line ending directly in the apical tip. In most specimens the transparent area starts about 2 mm behind the antemedian line and not directly behind it as in *N. basirei*. The hindwing differs from that of *N. basirei* by its more rounded form and the less developed anal tip. On the underside with similar pattern, only the antemedian line is not developed.

♂ **genitalia** (Fig. 5): Generally, the genitalia structures of the new species fit very well with those figured by LEMAIRE (1988: 461, fig. 378.1) for "*N. basirei*;" both species, *N. basirei* (Fig. 6) and *N. bispinosa*, differ mainly in the number of sclerified areas on the vesica and the size of vesica and saccus: While in *N. basirei* always only one sclerite can be found (and not two as figured in error by LEMAIRE 1988) on the right dorsolateral side of the vesica, *N. bispinosa* has two larger sclerified areas, one on each side of the dorsal part of the larger vesica (name!), with an apical spine turned in mediodorsal direction. The whole phallus is slightly larger in *N. bispinosa* but shows the same two lateral spiny groins with barbed hooks, obviously to fix the outside of the phallus in the genital opening of the ♀ during copulation. Aside of the broader saccus in *N. bispinosa* the main other genitalia structures are almost the same in both species. The somewhat larger right part of the juxta shown in Fig. 6 for *N. basirei* is of no specific significance; generally in the genus this right part seems to be little more developed, but it was not found to be a specific character. No significant structures could be found on sternites and tergites of last abdominal segments.

♀ (Figs. 3a, 3b): Ground colour almost similar or little darker than in ♂♂, and also with the typical large hya-

Figs. 1–4: *Neorcarnegia* specimens. **Fig. 1a**: *Neorcarnegia bispinosa* sp. n., ♂ holotype, dorsal view. **Fig. 1b**: ventral view. **Fig. 2**: *N. basirei*, ♂ from Brazil, Santa Catarina, dorsal view. **Fig. 3a**: *N. bispinosa* sp. n., ♀ paratype ("allotype"), dorsal view. **Fig. 3b**: ventral view. **Fig. 4**: *N. basirei*, ♀ from Brazil, Santa Catarina, dorsal view. — Figs. 1–4 approximately to the same scale, scale bar 1 cm each. **Figs. 5–6**: *Neorcarnegia* genitalia dissections. **Fig. 5**: *N. bispinosa* sp. n., ♂ genitalia, genitalia prep. no. 1424/06 NAUMANN. **Fig. 6**: *N. basirei*, ♂ genitalia, genitalia prep. no. 1423/06 NAUMANN. — Genitalia figures to the same scale, scale bar 1 mm.



line portion on all four wings, but with typical sexual dimorphism: The wings are larger, less falcate, the antenna filiform, in total around 8.0 mm long, with around 34 segments. The forewing has a length of 46.0 mm in the allotype and of 40.0 mm in 2 ♀♀ from Planaltina, Brazil (for comparison *N. basirei*: average 48.0 mm, $n = 3$), and the hyaline parts are somewhat larger than in *N. basirei*, more produced to the postmedian line. The hindwing has no anal tip as in the ♂, and is very similar in both species.

♀ genitalia not studied.

Preimaginal morphology unknown.

Discussion

It is astonishing that so far this species was not recognized and described by its unique characters. DRECHSEL & LAMPE (1996: 147) gave several notes about ecology and zoogeography of the species-complex where it became clear that "*N. basirei* sensu lato" is a typical faunal element of the so-called Cerrados which have a well-developed dry season. An almost similar vegetation can be found at the localities mentioned here for Bolivia: Following HUECK & SEIBERT (1972), there is a small area of so-called mesophytic transitional forests at the western border of the Chaco, and also savanna-like areas in the more western parts of Brazil in Distrito Federal and Goias from which the species is recorded here. DRECHSEL & LAMPE already mentioned that the species (they reared the true *N. basirei* from Paraguay; the identity was confirmed by dissection of a ♂ from the rearing ex coll. LAMPE, dissection no. 1987/06 W. A. NÄSSIG, SMFL) never occurs in subtropical humid forests but only in those Cerrado-like islands, and gave an overview about the known localities of the genus.

The distribution areas of the two species require some more detailed study; are they truly allopatric, or is there some overlap in the distribution? Earlier published distribution data (e.g., the maps in LEMAIRE 1988: 462 and DRECHSEL & LAMPE 1996: 149) must be corrected in accordance with the new status of the northwestern population.

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